

REMARKS

Independent claims 1, 26, 27, 28, and 62 have been amended to specify that the current collector includes a 6000 series aluminum alloy that includes 0.04-0.4% by weight of chromium, 0.01-6.8% by weight of copper, 0.1-7% by weight of magnesium, 0.15% or less by weight of manganese, and 0.4-0.8% by weight of silicon. Support for this amendment can be found, for example, on page 2, lines 15-21 of the specification and in Table 1 on page 6 under Aluminum 6061 (the weight requirements that are more specific than on page 2 are from Table 1). Dependent claims 3 and 65 include a few more of the specific ranges from Table 1 on page 6 under aluminum 6061. Independent claim 56 is specific for the Aluminum 6061 alloy in Table 1.

Claims 4-14, 25, 29-31, 37-55, 63, and 64 have been cancelled.

All the pending claims are directed to using a relatively specific 6000 series aluminum alloy. Importantly, the alloy includes at most 0.15% by weight of manganese. The aluminum 6061 alloy, which is covered by all the claims and includes at most 0.15% by weight of manganese, exhibited excellent properties when used in current collectors; see the examples beginning on page 10 of the application.

Applicants initially will focus on the rejection of independent claim 56, which has not been amended. Claim 56 was rejected under 35 U.S.C. § 103(a) over Sonada et al., U.S. 2002/0028389 (“Sonada”) in view of Sakamoto et al., U.S. Pat. 6,447,957 (“Sakamoto”). Sonada mentions using a current collector including an aluminum alloy in a primary lithium battery. Sakamoto describes current collectors made of aluminum alloys in secondary batteries. Sakamoto teaches using 1000, 3000, 5000, and 8000 series’ aluminum alloys. The Examiner printed the specification of a specific 3000 series aluminum alloy, aluminum 3105-O, and contends it has “similar mechanical and electrical properties as compared to the 6061 aluminum alloy.” (Office action, paragraph 5).

As an initial matter, the aluminum 3105-O specification was printed by the Examiner in 2006, which is two to three years subsequent to the filing date of the application. For purposes of this amendment, applicants will assume that the aluminum 3105-O specification was available prior to the filing date of the application, but applicants reserve the right to investigate this issue in subsequent prosecution.

Applicants note that there is no suggestion in Sonada or Sakamoto, alone or in combination, to use a Sakamoto current collector in the Sonada battery. Applicants also note that the Examiner has reached into a general list of aluminum alloys and pulled out a specific example (aluminum 3105-O) for a suggestion to use aluminum 6061 alloy; it is a tenuous connection.

But setting these issues aside, a person of ordinary skill in the art would not be motivated to use the aluminum 6061 alloy in place of the aluminum 3105-O alloy. The alloys have different chemistries. The aluminum 3105-O alloy includes at least 0.3% by weight of manganese, while the aluminum 6061 aluminum alloy includes no more than 0.15% by weight of manganese. They are different alloys that will exhibit different properties when used in batteries. A person of ordinary skill in the art, even if guided to the aluminum 3105-O alloy by Sakamoto, would not then be motivated to use the aluminum 6061-O alloy in its place.

For the above reasons, applicants request that the 35 U.S.C. § 103(a) rejection of claim 56 be withdrawn.

Independent claims 1, 26, 27, 28, and 62, although slightly broader than claim 56, all specify that the 6000 series aluminum alloy include 0.15% or less by weight of manganese. These claims are patentable over the combination of Sonada and Sakamoto for the same general reasons that claim 56 is patentable. In addition, the dependent claims are patentable for at least the same reasons that the independent claims are patentable.

Applicants respectfully submit that the claims are in condition for allowance and such action is requested.

Enclosed is a \$450.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Applicant : Fred Berkowitz et al.
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Respectfully submitted,

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Robert C. Nabinger, Reg. No. 42,934 for

Robert C. Nabinger
Reg. No. 33,431

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

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